May 6, 2019

Ms. Beth Alafat, Acting Chief
Wetlands Protection Unit
U.S. Environmental Protection Agency Region 1 New England
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Dear Ms. Alafat,

This letter and its attachments provide comments to support why CMP's revised submission of an up-to-date CWA Section 404 application should include the waters of the Gulf of Maine.

You wrote that the EPA's CWA Section 404(b) (1) guidelines set forth the environmental standards which must be met in order for a CWA Section 404 permit to be issued.

One of the guidelines prohibit the issuance of a permit if the discharge would cause or contribute to significant degradation of waters of the United States.

In my attached April 2, 2019 submission to USACE, I documented why the Gulf of Maine is Essential Fish Habitat (EFH) for the federally listed endangered Gulf of Maine Distinct Population Segment (GOM DPS) of Atlantic salmon and North Atlantic right whale and asked the USACE to include the Gulf in its Environmental Assessment (EA) of CMP's application.

In my attached February 14, 2019 submission to Maine's Department of Environmental Protection (DEP), I pointed out the following:

> "The project components do not start at the Canadian border, and must include the reservoir hydroelectric generating facilities located in Canada, which are storing and regulating water flows into the Gulf of Maine's ecosystem during the biologically active season of the year and significantly increasing the flow during the winter, which is the biologically inactive time fo the year. H-Q recognized these reservoir generating facilities as components in the project in a 12/14/18 letter, in which, they wrote "*Excess water not used to generate electricity is stored in large reservoirs for use in later periods.*"

DEP will not expand the scope of CMP's application to include the Gulf of Maine and the USACE has told my daughter that they have been told not to include the Gulf of Maine.

In my attached April 10, 2019 letter to President Trump I wrote the following: "On behalf of the residents of Maine's Second Congressional District I am asking that you require the U.S. Army Corps of Engineers (USACE) of the New England District in Maine to expand its environmental assessment (EA) to include the Gulf of Maine and to assess how it has been

impacted by the long-term storage of the spring runoff by HydroQuebec's reservoir hydroelectric facilities."

The Gulf of Maine's Atlantic salmon were listed as an endangered species on December 17, 2000 by the federal government.

The State of Maine responded by filing an unsuccessful lawsuit claiming that the feds had "betrayed" Maine and were "trifling with people's lives".

Today, it is Governor Mills and her DEP who have been trifling with the survival of the endangered Maine Atlantic salmon and the endangered North Atlantic right whale by refusing to include the Gulf of Maine as part of the scope of CMP's proposed NECEC.

We have many alternative sources of energy to choose from but these endangered species cannot choose another habitat to live in.

It took millennia for the Gulf of Maine's natural water cycle to develop along with the critical spring runoff from Canadian rivers which delivered the nutrients and kinetic energy necessary to support these endangered species.

The NECEC is transmitting reservoir hydroelectricity generated by withholding annually 50 to 70 percent of the nutrient enriched water and kinetic energy of the Canadian spring runoff to maximize winter generation.

Before these dams were built, the spring runoff lowered the salinity at Cabot Strait by as much as 3 percent from mid-May through mid-October as measured by Dr. Neu, a Canadian oceanographer, using 1960-1976 salinity data.

Before 1969, the Gulf of Maine was the beneficiary of four month long fresh water offshore tsunami's out of the Gulf of St Lawrence and Hudson Bay. I use the word "tsunamis" to portray the colossal size of this natural freshwater wave being powered by the spring runoff.

The average volume of the Gulf of St. Lawrence tsunami was calculated in the 1970s by Dr. Hans Neu, at 282,300 cubic feet per second, which is equivalent to 3 and one-third Niagara Falls! "Niagara Falls has a flow rate of 84,756 cubic feet per second, which is the highest rate of flow for any water fall in the world!" (Wikipedia) This amount of flow would fill Maine's Moosehead Lake in seven and a half days. Moosehead Lake is 118 square miles in size with an average depth of 55 feet.

Historically, another offshore tsunami flowed thru James and Hudson Bays and through the Hudson Straits, and was at least twice the size of the one described above. The volume of water withheld for long- term storage from this watershed is equivalent to six and two thirds Niagara Falls.

The James and Hudson Bay watershed covers a third of Canada and the total flow of freshwater flowing into these bays is estimated at 30,000 cubic meters per second, or 13 Niagara Falls (Greg Hamilton, Ottawa Citizen October 7, 1991).

> "To meet the demand of electricity during cold weather, dams and diversions have increased the winter flow on the La Grande River in Quebec by eight times (from 17,600 cubic feet per second to 141,000 cu.ft/sec.) and in order to store water for the following winter have eradicated the spring flood, flow reduced from 177,000 cu.ft./sec to 53,000 cu.ft./sec. (Excerpted from "Silence Rivers: The Ecology and Politics of Large Dams" by Patrick McCully 2001)

The spring freshet (flood) on the La Grande River has been reduced 70 percent by HydroQuebec and the typical reduction on all its dams has been between 50 to 70 percent. I have been conservative and used 50% for this discussion and 50 percent reduction would be loss of 6.5 Niagara Falls flowing out of Hudson Bay and the Hudson Strait.

From 1969 to 1993, HydroQuebec built 7 mega-reservoir hydroelectric facilities, and the amount of energy and water in 10 Niagara Falls flowing for 4 months, has been removed annually from the Gulf of Maine's natural water cycle since 1993 by HydroQuebec and Manitoba reservoir dams (6.5 from Hudson Bay and 3.5 from Gulf of St. Lawrence).

These colossal water flows were the driving force pumping onshore tsunami's of strong upwelling currents transporting dissolved silicate and other essential nutrients of the deep sea waters up onto the Labrador, Northeast Newfoundland and Scotia Shelves and into the Gulfs of Maine and St. Lawrence via the Northeast and Laurentian Channels, respectively.

The advocates of hydroelectricity blame the declines in the fisheries on climate change and ignore the epic amount of water and energy which has been suppressed by reservoir hydroelectric facilities.

Both the strength of these regional thermohaline currents and the worldwide thermohaline circulation is directly correlated to the strength of the spring runoff.

From 1948 to 2010, the global storage capacity of reservoirs grew from about 500 to greater than 6,000 cubic kilometers (Gleick 2012). This would be the equivalency of eliminating the amount of water and energy of 150 Niagara Falls for four months from the natural pump of the worldwide thermohaline circulation.

A July 2018 article "Tiny Copepod Causes Quivers in Gulf of Maine Food Web" documents that the abundance of Calamus finmarchicus, a cold-water copepod is declining and contributing to the starvation of the right whale et. al. fisheries. Jeffery Runge of the Gulf of Maine Research Institute was quoted: "The cause of the decline in copepods is unclear. It's hard to say whether it is due to a long-term climate change or if it is a local event." (Landings 7/22/18)

Nick Record of Bigelow Laboratory for Oceans Sciences said “climate change has shifted the currents in the whale’s feeding waters, making this plankton less readily available” (Jenny Gathright NPR 12/29/218).

It is inconceivable to the advocates of large reservoir hydroelectric facilities that these facilities are contributing to climate change and starvation of the fisheries.

However, a solid case can be made that the proliferation of reservoir hydroelectric facilities and flow regulation may be the driving factor in the starvation of the salmon and other fisheries and a major, if not the driving factor in the warming of the oceans and atmosphere, and especially the accelerated warming of the Gulf of Maine.

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Cc: Jay Clement, USACE

Gerald D. Reid, DEP Commissioner